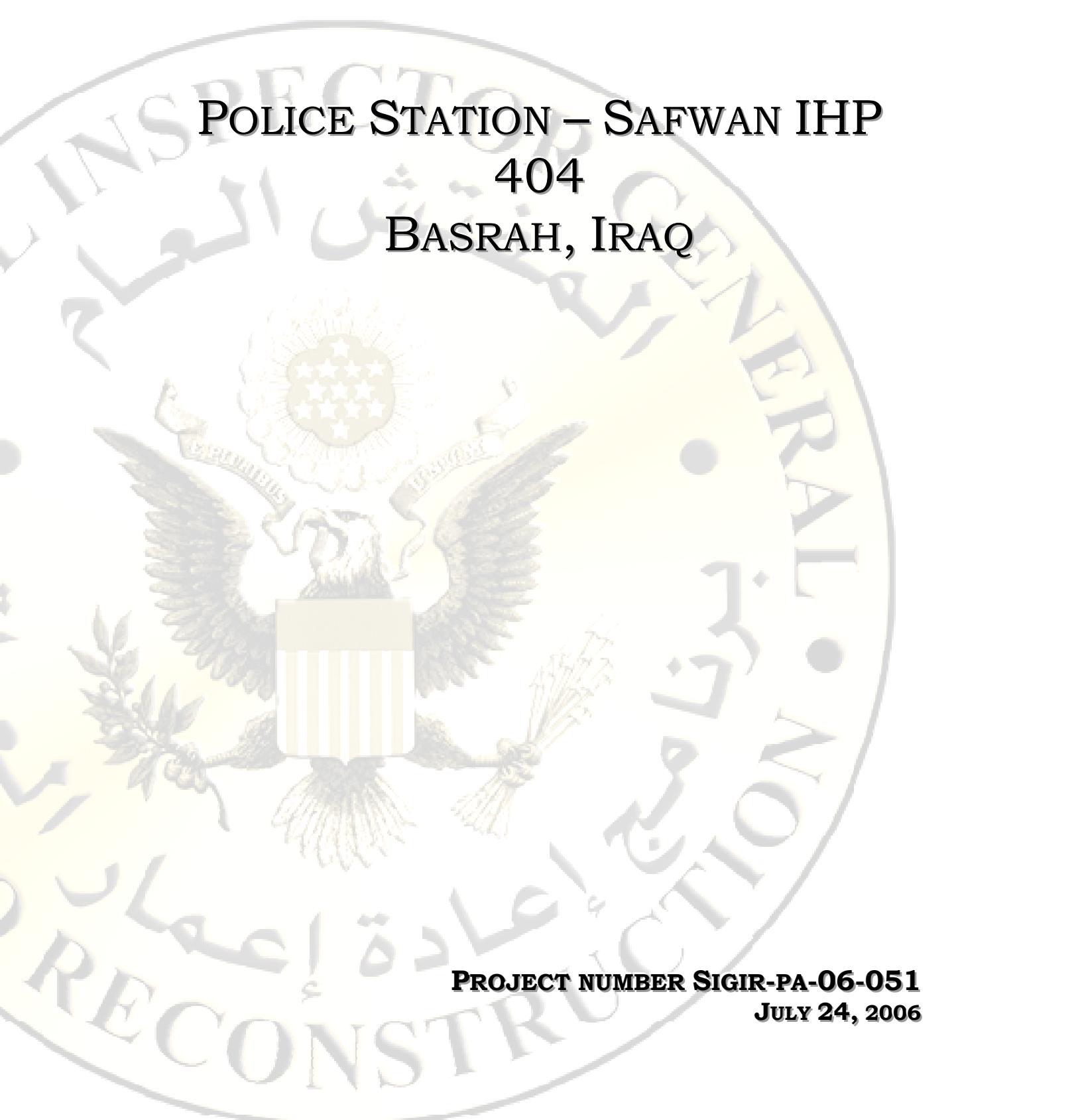


POLICE STATION – SAFWAN IHP  
404  
BASRAH, IRAQ



PROJECT NUMBER SIGIR-PA-06-051  
JULY 24, 2006

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## SPECIAL INSPECTOR GENERAL FOR IRAQ RECONSTRUCTION

July 24, 2006

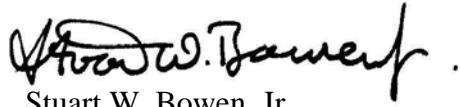
MEMORANDUM FOR COMMANDING GENERAL, MULTI-NATIONAL FORCES -  
IRAQ  
COMMANDING GENERAL, GULF REGION DIVISION,  
U.S. ARMY CORPS OF ENGINEERS  
DIRECTOR, IRAQ RECONSTRUCTION MANAGEMENT  
OFFICE

SUBJECT: Report on Project Assessment of the Safwan Iraqi Highway Patrol  
Construction, Safwan, Iraq (Report Number SIGIR-PA-06-051)

We are providing this project assessment report for your information and use. We assessed the in-process construction work being performed for the Safwan Iraqi Highway Patrol Construction, Safwan, Iraq to determine its status and whether intended objectives will be achieved. This assessment was made to provide you and other interested parties with real-time information on a relief and reconstruction project underway and in order to enable appropriate action to be taken, if warranted. The assessment team included a professional engineer and an auditor.

The comments received from the Commander, Gulf Region Division, U.S. Army Corps of Engineers, in response to a draft of this report addressed the issues raised and the actions taken should correct the issues we identified. As a result, comments on this final report are not required.

We appreciate the courtesies extended to our staff. This letter does not require a formal response. If you have any questions please contact Mr. Brian Flynn at (703) 604-0969 or [brian.flynn@sigir.mil](mailto:brian.flynn@sigir.mil) or Mr. Andrew Griffith, P.E., at (703) 343-9149 or [andrew.griffith@iraq.centcom.mil](mailto:andrew.griffith@iraq.centcom.mil).



Stuart W. Bowen, Jr.  
Inspector General

# **Special Inspector General for Iraq Reconstruction**

**SIGIR-PA-06-051**

**July 24, 2006**

## **Police Station – Safwan IHP 404, Basrah, Iraq**

### **Synopsis**

**Introduction.** This project assessment was initiated as part of our continuing assessments of selected sector reconstruction activities for Facilities and Transportation. The overall objectives were to determine whether selected sector reconstruction contractors were complying with the terms of their contracts or task orders and to evaluate the effectiveness of the monitoring and controls exercised by administrative quality assurance and contract officers. We conducted this project assessment in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included a professional engineer and an auditor.

**Project Assessment Objectives.** The objective of this project assessment was to provide real-time relief and reconstruction project information to interested parties in order to enable appropriate action, when warranted. Specifically, we determined whether:

1. Project results were consistent with original objectives;
2. Project components were adequately designed prior to construction or installation;
3. Construction or rehabilitation met the standards of the design;
4. The Contractor's Quality Control plan and the U.S. Government's Quality Assurance program were adequate; and
5. Project sustainability was addressed.

**Conclusions.** The assessment determined that:

1. When completed, the project should meet and be consistent with the original contract objectives if current construction methods are continued. The completed project should result in a complete 404 personnel Iraqi Highway Patrol administrative and barracks facilities.
2. Submitted design drawings and specifications were reviewed and appear complete and specific to construct the project. One area of concern is the design of the two barracks facilities. Structural reinforced concrete columns and beams are commonly used for construction to support the weight of the reinforced concrete floor and roof. The design for the Iraqi Highway Patrol barracks required the structural supporting walls to be made of brick to support reinforced concrete beams and reinforced concrete floor and roof slabs for the two story structures. Specifications for the required properties (compression strength) of the bricks were not included in the design submittals. The United States Army Corps of Engineers - Gulf Region South had not requested or reviewed a structural design analysis as part of the design submittal and approval process. Therefore, at this time and with the information available, it can not be determined if the use of brick instead of reinforced concrete columns will adequately support the two barracks facilities.

3. The majority of the work observed appeared to be consistent with the contract and design requirements of the project. Any deviations from the contract and design requirements were being actively resolved between the United States Army Corps of Engineers and the contractor. This occurred in part because the United States Army Corps of Engineers Project Manager and United States Army Corps of Engineers Quality Assurance Representative effectively monitored and supervised the construction efforts of the contractor.
4. The Safwan-IHP contract did not specify a requirement for the contractor to submit a Contractor Quality Control (CQC) plan, CQC daily reports, or CQC deficiency-tracking logs. The contractor submitted a Quality Control Plan that was inadequate because the plan did not completely portray the plans, procedures, and organization necessary for the contractor to carry out its quality management responsibilities; however, the end-product produced complies with the contract requirements.

Overall, the Quality Assurance program was adequate. Although security concerns prevented the Quality Assurance Representative from being on site on a regular basis during construction, a local Iraqi National hired by United States Army Corps of Engineers monitored field activities, and submitted Quality Assurance reports for each site visit. A deficiency log was not maintained, but deficiencies were minimal and documented in the Quality Assurance reports.

5. A review of the Safwan Iraqi Highway Patrol contract W916QW-05-D-0006 file, the site visit, and discussions with the United States Army Corps of Engineers Quality Assurance Representative and the Iraqi National Quality Assurance Representative disclosed that maintenance of the diesel engine generators was the only sustainability issue at the Safwan Iraqi Highway Patrol project. The contractor was to provide an electrical distribution system and diesel engine generators. At the acceptance of the project by the government, the required operation and maintenance manuals for the generator, as well as operation and maintenance training, warranty information, and as-built drawings will be provided.

**Recommendations.** The Commander, Gulf Region Division, should require an evaluation of the need to perform a structural analysis of the facility to ensure that the design of load bearing walls is adequate to support the structure.

**Management Comments.** We received comments on the draft report from the Commander, Gulf Region Division, U.S. Army Corps of Engineers. The Commander responded to the issues raised in the report and concurred with the recommendation. In addition, the Commander, Gulf Region Division, stated “The design-build contractor’s 100% design was reviewed on 14 June 2005 by Gulf Region South District (GRS) staff engineers and approved as acceptable. GRS staff engineers performed a secondary review and structural analysis of the load bearing capacity of the brick walls on 12 June 2006. GRS determined that the bearing capacity of the brick walls is adequate to support the structure.”

**Evaluation of Management Comments.** Management comments addressed the issues raised in the report. The actions taken were responsive to the recommendations and should correct the issue identified.

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# **Introduction**

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## **Objective of the Project Assessment**

The objective of this project assessment was to provide real-time relief and reconstruction project information to interested parties in order to enable appropriate action, when warranted. Specifically, we determined whether:

1. Project results were consistent with original objectives;
2. Project components were adequately designed prior to construction or installation;
3. Construction or rehabilitation met the standards of the design;
4. The Contractor's Quality Control (CQC) plan and the U.S. Government's Quality Assurance (QA) program were adequate; and
5. Sustainability was addressed.

## **Pre-Site Assessment Background**

### **Contract, Task Order, and Costs**

The Basrah Police Station – Safwan-Iraqi Highway Patrol (IHP) 404 project was completed under Contract W916QW-05-D-0006, Task Order 0001, dated 23 April 2005, a firm-fixed price contract, for \$2,471,810. The contract was between the United States Army Corps of Engineers (USACE) Gulf Regional Division – Southern District (GRS) and First Kuwaiti Contracting, Al-Souk Al-Dakhli. Contract W916QW-05-D-0006 called for the construction of an operating facility for a 404-man IHP Barracks and the associated facilities.

There were two modifications to the contract W916QW-05-D-0006, Task Order 0001:

- Modification # 01, issued 26 May 2005, reflected a change to the location of the Iraqi Highway Patrol Station at Safwan from Military GRID 38R QU 632 358 to 38R QU 60745 38099. No additional funding was added at that time.
- Modification # 02, issued 30 November 2005, reflected a modification to: (1) increase quantities for backfill, sub-base preparation, reinforced concrete pavement, culvert piping, and site roadway lighting as a result of having to change the site location in Mod # 01; and (2) extend the contract completion date to 31 December 2005. The total cost of the contract was increased by \$79,031 from \$2,471,810 to \$2,550,841. All other terms and conditions in the contract remain unchanged.

### **Project Objective**

The objective of IHP Barracks Project was to construct an operating facility for a 404-person Iraqi Highway Patrol administrative and barracks facilities located in the Governorate of Al Basrah. The IHP is part of the Iraqi Ministry of Interior and is projected to include approximately 6300 individuals country-wide. The mission of the IHP is to provide both law enforcement and security along the highways and major roadways of Iraq.

### **Description of the Facility (preconstruction)**

The description of the facility (preconstruction) was based on information obtained from the contract and the USACE project file. The site is located approximately 60 kilometers (km) south of the city of Basrah near the Iraq – Kuwait border, and adjacent to a major highway running from Kuwait through Iraq. Modification 001 moved the initial location of the project 3.4 km before work had begun. The current location was an undeveloped level area of 180 meters (m) by 100 m and is offset from the major highway by 131 m. Community electricity, water, and waste water systems were not readily assessable at the current location. Site Photo 1 shows the project location during initial construction.



**Site Photo 1: IHP Barracks project site during initial construction (Photo courtesy of the USACE)**

### **Scope of Work of the Contract**

Based on the contract Scope of Work (SOW), the major construction tasks for the design and construction of the IHP Barracks included:

- Two barracks facilities
- Perimeter walls, lighting, and guard towers
- Force protection for vehicle search area
- Fuel point
- Water well with filtration and water distribution network
- Sewage network
- Power station and network
- Side walks and roads
- Covered and uncovered parking areas

### **Current Project Design and Specifications**

#### **Design and Specification Requirements**

The contract required the research and design for the construction of buildings and facilities associated with the IHP Barracks project. The contract included a general layout of facilities required for the project as well as concept drawings for the two

“central operations facilities” (barracks). Requirements for incremental design submittal was not identified in the contract, however the contract did state that the overall layout and design will be approved by the United States Corps of Engineers (USACE) Gulf Region South Division (GRS). The contract stated that the design and construction shall adhere to International or Iraqi Code, as specified.

The contract required the contractor to provide a complete design illustrating all proposed new work for the complete construction of all buildings and structures for the facility. Design was required to be based on a 5% female population, to include shower and toilet facilities. The kitchen was listed to support 366 people and a dining room designed to support seating of 50 people at one time. Building and structures were specified to conform to International Building Codes. General design requirements were to include the following:

- Central operation facility consisting of two floors
- Covered parking for 20 vehicles
- Parking lot for visitors capable of supporting 20 vehicles
- Fuel point
- Power generation station
- Sewage network
- Water supply and distribution system, to include filtration system

The contractor submitted design drawings and material submissions for all systems under construction to include electrical, mechanical, water, waste water, and structural drawings. The USACE project management utilized submittal registers, Eng Form 4288-R, to track the design submittals. The design drawings were certified by the contractor and approved, approved with comments, or commented on by USACE GRS and documented with the use of the Transmittal of Shop Drawings, Equipment, Material, Samples, or Manufacture’s Certificate of Compliance form. Additionally, material and equipment specifications were submitted and approved using the same procedure.

Submitted design drawings and specifications were reviewed and appear complete and specific to construct the project. One area of concern is the design of the two barracks facilities. Structural reinforced concrete columns and beams are commonly used for construction to support the weight of the reinforced concrete floor and roof. The design for the IHP barracks required the structural supporting walls to be made of brick to support reinforced concrete beams and reinforced concrete floor and roof slabs for the two story structures. Specifications for the required properties (compression strength) of the bricks were not included in the design submittals. The USACE GRS had not requested or reviewed a structural design analysis as part of the design submittal and approval process. Therefore, at this time and with the information available, it can not be determined if the use of brick instead of reinforced concrete columns will adequately support the two barracks facilities.

## Site Assessment

On 23 February 2006, we performed an on-site assessment of the Safwan IHP project, which included an inspection of the facilities at the site. The majority of the work was in-progress at the time of the assessment. The contractor employees were on site and actively working at the time of the visit. The USACE Project Engineer, Quality Assurance Representative, and the contractor representatives were on site during the site visit. The project was listed as 74% complete in the 22 January 2006 PCO database.

## **Work Completed**

At the time of the site visit, work was not 100% complete for any major portion of the project. All work is discussed in the “work in progress” section of this report.

## **Work in Progress**

### **Two Barracks Facilities**

The contract required two administrative barracks facilities to be designed and constructed to International Building Code. The requirements were for facilities to support 404 personnel, with up to 5% female population, for administration, billeting, and dining. The kitchen was required to support 366 people and the dining room to support 50 people at one time. The roof was to include four-corner guard points per building. The buildings were required to have all plumbing, electrical, and mechanical to include air conditioning for a complete facility.

The approved design consisted of two similarly designed two-story buildings. One building included a kitchen and dining facility, administration rooms, and billeting rooms. The second building included administrative and billeting rooms. Both buildings were designed to be 18.70 m by 25.64 m and constructed on reinforced concrete footings. Load bearing exterior and interior walls were designed to be constructed of brick, with reinforced concrete pads for the floors and ceilings supported by reinforced concrete beams.

At the time of the assessment, construction of both buildings was complete, although finishing work was still being accomplished. The electrical, plumbing, doors, windows, stairwells, and split air conditioning units had been installed. The electrical systems were operational and lights were functional at the time of the site visit. Cosmetic finishing work was still pending.

Site Photo 2 shows the exterior of the two barracks buildings and Site Photo 3 shows the interior of the dining facility. Site Photo 4 shows the barracks bathroom and Site Photo 5 shows the interior of a billeting area. All work appeared consistent with the contract and design requirements.



**Site Photo 2: Exterior view of both barracks buildings**



**Site Photo 3: Dining facility**



**Site Photo 4: Bathroom facility**



**Site Photo 5: Billeting room**

### **Perimeter walls, lighting, and guard towers**

#### Perimeter Walls

The contract required 550 linear meters of 3.0 m high perimeter security walls with front and rear gates. In addition, the contract specified the wall system to be concrete masonry unit (CMU) type, with fixed metal brackets at the top, 6 lines of razor wire, and one roll of concertina wire for the length of the wall. The submitted and approved design required a reinforced concrete foundation with concrete block walls and concrete cap. The perimeter wall design required 20 centimeter (cm) thick construction with lateral reinforcement of concrete block every 4.0 m. The most recent design plot drawing shows the perimeter dimensions of the site to be 80 m by 120 m with 400 linear meters of perimeter fence.

At the time of the site visit, the perimeter security wall was nearly complete and the front and rear gates were installed. The construction of the perimeter walls were consistent with the design requirements and included exterior plaster and paint. The razor wire was observed placed onto the mounting brackets, although the single roll of concertina wire along the entire length of the perimeter wall had not been installed at the time of the site visit. Front and rear entry gates were metal and installation was complete. Site Photo 6 shows a completed section of the perimeter wall, Site Photo 7 shows finishing work being completed on a section of the perimeter wall, and Site Photo 8 shows the rear entrance gate.



**Site Photo 6: Completed section of perimeter wall**



**Site Photo 7: Finishing work of section of perimeter wall**



**Site Photo 8: Rear entrance gate**

**Security Lighting**

The contract required perimeter and exterior lighting systems to enable guard force personnel to observe activities around the facility without disclosing their presence and to provide appropriate security lighting to all building entries, exit ways, building perimeters (1 per corner), and courtyard areas. The design required eight 250 watt 8-meter high light poles and eight (2 per corner guard post) exterior facing lights. In addition, 19 (150 watt 4-meter high) light poles to illuminate the water treatment system, generator, fuel, and roadways were required.

At the time of the assessment, three 8-meter light poles and none of the 4-meter light poles were observed installed. During the site visit electrical testing was being conducted with the use of a portable generator and the light poles were observed to be operational. Exterior building wall mounted lights were observed at entry ways. The guard tower outward orientated lights were not evaluated. Site Photo 9 shows installed 8-meter light poles with the lights illuminated, and Site Photo 10 shows the installed exterior building lights.



**Site Photo 9: 8-meter light poles**



**Site Photo 10: Exterior building light**

#### Guard Towers

The contract required four corner guard towers, with dimensions of 3 m by 3 m, to be constructed of concrete and CMU and sited along the interior perimeter fence at the corners. The guard towers were required to be anchored to a reinforced concrete pad providing a view of the exterior of the camp with a clearance of 1.5 m above the wall. The design drawings required elevated guard towers on reinforced concrete footings and columns, with reinforced concrete floor slab, parapet, and angled roof slab. In addition, interior lighting and steel access ladders were to be installed. At the time of the assessment, construction of all four guard towers was complete, exteriors were painted, and access ladders were installed. The construction appeared consistent with the contract and design requirements. Site Photo 11 shows an exterior view of one of the guard towers.



**Site Photo 11: Exterior view of corner guard tower**

### **Force protection for vehicle search area**

The contract required the construction of a paved vehicle search area to include 1 m tall concrete barriers, earth filled basket barriers, vehicle drop arm gates, remotely controlled sliding gates, and chain link personnel staging/holding areas. This area was located outside of the front entrance of the facility and was not evaluated during the site visit. In addition, due to security concerns, force protection for vehicle search design requirements will not be included in this report.

### **Fuel Point**

The contract required providing fuel storage and distribution to support the vehicles used in the camp. Requirements included a 36,000 liter (L) gas and 10,000 L diesel capacity above ground horizontal steel tank for storage with fill tube and cap, suction tube, tank gauge, vent, and fittings. Tanks were to be provided with support saddles, platform/stair, concrete pad, and leak spillage containment provisions. In addition, dispensing units for both grades of petroleum were to be installed and equipped with dual nozzles and key control. The fuel point design drawings were consistent with contract requirements and included fuel tank details, piping, trench details.

At the time of the assessment, the fuel tanks and the fuel dispensing units were in place, although these items had not been completely tied in. Two steel horizontally mounted fuel tanks were observed located within an enclosed wall system. The fuel tanks were supported by a concrete cradle system and also by steel supports. Piping had been installed and two fuel dispensing units were located on a concrete pad. The framework for a steel framed cover was complete over the fuel dispensing units, although the roof had not been installed. The fuel tanks and piping were consistent with the contract and design requirements. Site Photo 12 shows the end of one of the fuel storage tanks and wall enclosure, and Site Photo 13 shows the fuel dispensing units.



**Site Photo 12: Fuel storage tank with wall enclosure**



**Site Photo 13: Fuel dispensing units**

#### **Water well with filtration and water distribution network**

The contract required the construction of a water supply system, filtration system, distribution system, and water well if no local supply was available. The contractor was required to provide a complete design illustrating all proposed new work for the complete construction of the facility water supply and distribution system and the system was to conform to International Plumbing Code. The approved design required a water well and pump, reverse osmosis membrane filtration system, 200,000 L field constructed storage tank, (2) 6 kilowatt (8 horsepower) distribution pumps, and (6) 500 L hydropneumatic pressure vessels. The system design included associated piping and fitting. The water system components were required to be mounted on reinforced concrete pads and the filtration system, distribution pumps, and hydropneumatic pressure vessels included protective shade coverings.

At the time of the assessment, the water system was being installed. The concrete pads had all been constructed, although footings for the filtration system were not complete. The reverse osmosis filtration system was in place, the storage tank was under construction, and both the distribution pumps and hydropneumatic pressure vessels were installed. Piping and connections were partially complete. All system components were observed to be consistent with contract and design requirements. Site Photo 14 shows the six hydropneumatic pressure vessels, two water distribution pumps, and single water storage tank (under construction). Site Photo 15 shows the reverse osmosis water filtration system during installation.



**Site Photo 14:** (6) hydrodynamic pressure vessels (left foreground), (2) water distribution pumps (right foreground), and single water storage tank



**Site Photo 15:** Reverse osmosis filtration unit

### Sewage network

The contract required a complete design illustrating all proposed new work for the complete construction of the facility's sewer system. The system was to consist of a series of underground piping, manholes, lift station, pumps, and controls and was to terminate at the packaged water treatment station or the local waste water treatment facility. The approved design required installation of an on-site septic system consisting of underground tanks, leech pits, and underground piping.

At the time of the assessment, the septic system had been installed, and could not be evaluated because it was located below grade. The manholes were visible at the

surface where the septic system was installed. Site Photo 16 shows the septic system during installation (courtesy of USACE) and shows tank and leech pits.



**Site Photo 16: Septic system during installation (Courtesy of USACE)**

#### **Power station and network**

The contract required a complete electrical power generation plant (as needed) which includes an electrical distribution system and diesel engine generators. The approved design required a 350 Kilovolt-Amp (kVA) diesel generator unit with controls to be mounted on a reinforced concrete pad with protective shade covering. The submitted manufacturer's specification included a skid mounted Perkins 400 kVA generator package. At the time of the assessment the concrete pad was constructed, although the generator had not been delivered to the site. The framework for the protective shade covering was under construction. Site Photo 17 shows the concrete pad for mounting the generator unit.

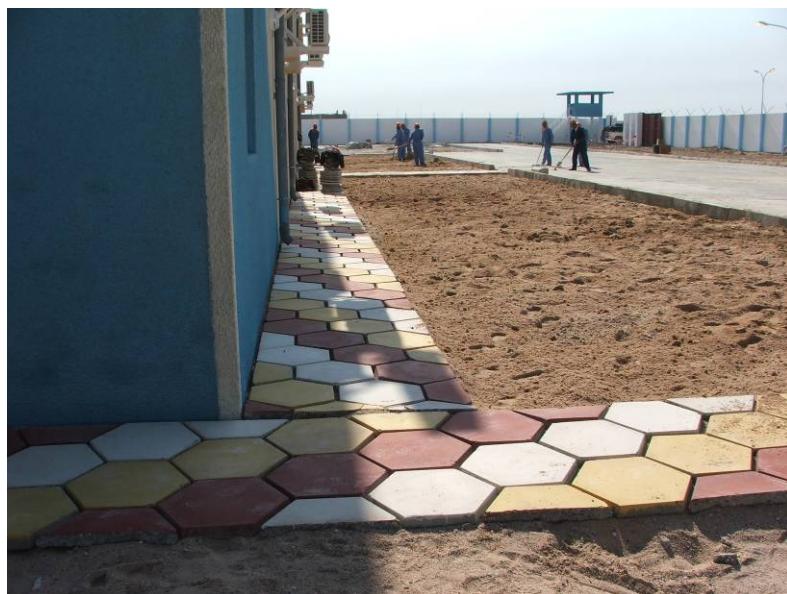


**Site Photo 17: Concrete pad for generator unit**

### **Sidewalks and roads**

The contract required complete designs for all proposed new work for the complete construction of the facility's road network system and sidewalks. The network of roads was required for connecting adjacent buildings, parking areas, and other areas of work. The sidewalks were required to connect adjacent buildings, parking areas, and roads. The approved design included roadways from the main entrance to the fuel storage and distribution points, visitor parking area, and covered parking area. Sidewalks were included along the perimeter of each barracks facility and from the barracks to generator, well, fuel point, parking areas, and perimeter corner guard post. Roadways were designed to be 6 m wide with bitumen expansion joints every 5 m and constructed of compacted sub-base and reinforced concrete surface. The sidewalks were required to be 1.2 m wide and constructed with wire mesh reinforced concrete on a compacted sub-base.

At the time of the site visit, the roadways were constructed and sidewalks installed. Site Photo 18 shows the sidewalks along the perimeter of the barracks facility and roadway. The sidewalks appeared to be consistent with contract and design requirements. Although tile on the walkway was not included in the original design, the substitution enhanced the appearance of the facility. The roadways were constructed of concrete and were complete at the time of the site visit.



**Site Photo 18: Sidewalks along the perimeter of the barracks facility (foreground) and roadway (background)**

### **Covered and uncovered parking areas**

The contract required design and construction of a paved covered parking area and uncovered parking lot capable of supporting 20 vehicles each. The approved design required uncovered parking adjacent to the barracks buildings of similar construction to the roadways. The covered parking area design required a reinforced concrete pad with expansion joints for the parking area and reinforced concrete footings, steel framed supporting structure, galvanized corrugated metal roof covering, and electrical lights.

At the time of the assessment, the uncovered parking area was complete and the covered parking area was under construction. The covered parking area design required steel I-beam columns and I-beam cross members. Although steel I-beams

were used for the columns, rectangular tubular steel was used for the cross member supports. The cross members were noticeable deflecting under the weight of the roof. The USACE project manager and contractor were aware of the deflection. The USACE project manager stated that he has coordinated with the contractor to install additional columns to correct this issue. Site Photo 19 shows the covered parking area. Site Photo 20 shows the deflection of the rectangular tubular steel cross member supports in contrast to a straight line between support points.



**Site Photo 19: Covered parking area**



**Site Photo 20: Deflection of the rectangular tubular steel cross member in contrast to a straight line between support points**

### **Work Pending**

All work for this project was in-progress at the time of the site assessment and presented in the preceding “Work in Progress” section of this report.

## **Project Quality Management**

### **Contractor's Quality Control Program**

The Basrah Police Station – Safwan-IHP 404 contract W916QW-05-D-0006 did not specify a requirement for a Contractor Quality Control (CQC) plan, CQC daily reports, or a CQC deficiency-tracking log. According to the United States Army Corps of Engineers Quality Assurance Representative (QAR) and Local National (LN) QAR, the contractor submitted a Quality Control Plan. The CQC plan consisted of a scope, definitions, management responsibility, resource management, and product realization. We determined that the CQC plan did not meet the standards addressed in ER 1180-1-6 (*Construction Quality Management*) or PCO Standard Operating Procedure CN-103 (*Contractor Construction Quality Control Plan*). The CQC written plan shall completely delineate the plans, procedures, and organization necessary for the contractor to carry out his quality management responsibilities and produce an end product which complies fully with the contract requirements. The contractor's written plan did not completely portray the plans, procedures, and organization necessary for the contractor to carry out his quality management responsibilities. Although the CQC plan was inadequate, the end-product produced complies with the contract requirements. Although the Safwan-IHP 404 contract did not specify a requirement for CQC daily reports or CQC deficiency-tracking logs, the contractor recently submitted a daily report and a contractor deficiency log. The QC reports provided the work performed, the work location, and the work description. The contractor's deficiency log contained a list of safety issues, and not a list of construction deficiencies. However, the QAR stated that the contractor is working on incorporating more construction related deficiencies versus safety related deficiencies.

### **Government Quality Assurance**

Engineering Regulation (ER) 1110-1-12 and PCO Standard Operating Procedure CN-100 specify requirements for a government QA program. Due to the security situation, it was not possible for the USACE QAR to be on site every day. However, an Iraqi National QA representative has provided on site quality assurance since August 2005. The Iraqi National filed QA reports for each day on site, which were forwarded to the USACE QAR and Resident Engineer for review and verification of progress completed for payment approval. In addition, the QAR reports were sufficiently complete and timely. Furthermore, the QAR reports included project specific or detailed photographs that reinforced the information provided in reports.

A QA deficiency log was not generated for this project. The PCO CN-102 requirement states that the QAR will maintain a QA deficiency log for all the deficiencies noted during the QA inspections, which will include digital photographs of any deficiencies noted. The USACE QAR did not maintain a QA deficiency log; however, the QAR did maintain QA reports that included digital photographs of any deficiencies noted at the site.

## **Project Sustainability**

A review of the Basrah Police Station – Safwan-IHP 404 contract W916QW-05-D-0006 file, the site visit, and discussions with the USACE QAR and Iraqi National QAR disclosed that maintenance of the diesel engine generators were the only sustainability issues at the Safwan IHP. The contractor was to provide an electrical distribution system

and diesel engine generators. Requirements for operation and maintenance manuals for the generator were included, as well as operation and maintenance training, warranty information, and as-built drawings. According to the USACE QAR the contractor will provide the operation and maintenance manuals, operation and maintenance training, warranty information, and as-built drawings to the Safwan IHP at the acceptance of the project by the government.

## **Conclusions.**

Based upon the results of our site visit, we reached the following conclusions for assessment objectives 1, 2, 3, 4, and 5. Appendix A provides details pertaining to Scope and Methodology.

- 1. Determine whether project results are consistent with original objectives.**

The project was listed as 74% complete at the time of the site visit. However, the completed project should meet and be consistent with the original contract objectives if current construction methods are continued. The completed project should result in a complete 404 personnel Iraqi Highway Patrol administrative and barracks facilities.

- 2. Determine whether project components were adequately designed prior to construction or installation.**

The contractor submitted design drawings and material submissions for all systems under construction to include electrical, mechanical, water, waste water, and structural drawings. The design drawings were certified by the contractor and approved, approved with comments, or commented on by USACE GRS and documented. Additionally, material and equipment specifications were submitted and approved using the same procedure. Submitted design drawings and specifications were reviewed and appear complete and specific to construct the project.

One area of concern is the design of the two barracks facilities. Structural reinforced concrete columns and beams are commonly used for construction to support the weight of the reinforced concrete floor and roof. The design for the IHP barracks required the structural supporting walls to be made of brick to support reinforced concrete beams and reinforced concrete floor and roof slabs for the two story structures. Specifications for the required properties (compression strength) of the bricks were not included in the design submittals. The USACE GRS had not requested or reviewed a structural design analysis as part of the design submittal and approval process. Therefore, at this time and with the information available, it can not be determined if the use of brick instead of reinforced concrete columns will adequately support the two barracks facilities.

- 3. Determine whether construction met the standards of the design.**

The majority of the work observed appeared to be consistent with the contract and design requirements of the project. Any deviations from the contract and design requirements were being actively resolved between the USACE and Contractor. This occurred in part because the USACE Project Manager and

USACE QAR effectively monitored and supervised the construction efforts of the contractor.

4. Determine whether the Contractor's Quality Control plan and the Government Quality Assurance Program were adequate.

The Safwan-IHP contract did not specify a requirement for the contractor to submit a Contractor Quality Control (CQC) plan, CQC daily reports, or CQC deficiency-tracking logs. The contractor submitted a Quality Control Plan that was inadequate because the plan did not completely portray the plans, procedures, and organization necessary for the contractor to carry out its quality management responsibilities, however, the end-product produced complies with the contract requirements.

The Engineering Regulation 1110-1-12 and PCO Standard Operating Procedure CN-100 specify requirements for a government Quality Assurance (QA) program. Overall, the QA program was adequate. Although security concerns prevented the QAR from being on-site on a regular basis during construction, a local Iraqi National hired by USACE monitored field activities, and submitted QA reports for each site visit. A deficiency log was not maintained, but deficiencies were minimal and documented on the QA reports. In addition, the QA reports included project specific or detailed photographs that reinforced the information provided in the reports.

5. Determine if project sustainability was addressed.

A review of the Safwan IHP contract W916QW-05-D-0006 file, the site visit, and discussions with the USACE QAR and Iraqi National QAR disclosed that maintenance of the diesel engine generators were the only sustainability issues at the Safwan IHP. The contract stated that the contractor was to provide an electrical distribution system and diesel engine generators. Requirements for operation and maintenance manuals for the generator were included, as well as operation and maintenance training, warranty information, and as-built drawings. According to the USACE QAR the contractor will provide the operation and maintenance manuals, operation and maintenance training, warranty information, and as-built drawings to the Safwan IHP at the acceptance of the project by the government.

## **Recommendations.**

The Commander, Gulf Region Division, should require an evaluation of the need to perform a structural analysis of the facility to ensure design of load bearing walls is adequate to support the structures.

## **Management Comments.**

We received comments on the draft report from the Commander, Gulf Region Division, U.S. Army Corps of Engineers. The Commander responded to the issue raised in the report and concurred with the recommendation. In addition, the Commander, Gulf Region Division, stated "The design-build contractor's 100% design was reviewed on 14 June 2005 by Gulf Region South District (GRS) staff engineers and approved as acceptable. GRS staff engineers performed a secondary review and structural analysis of

the load bearing capacity of the brick walls on 12 June 2006. GRS determined that the bearing capacity of the brick walls is adequate to support the structure.”

## **Evaluation of Management Comments.**

Management comments addressed the issues raised in the report. The actions taken were responsive to the recommendation and should correct the issue identified.

## **Appendix A. Scope and Methodology**

We performed this project assessment from February through May 2006, in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included a professional engineer and an auditor.

In performing this Project Assessment we:

- Reviewed contract documentation to include the following: Contract, Contract Modifications, Contract documentation, and Statement of Work;
- Reviewed the design package (drawings and specifications);
- Reviewed the Contractor's Quality Control Plan, Contractor's Quality Control Reports, Contractor's Quality Control Deficiency Log, Testing Reports, Quality Assurance Reports, and Quality Assurance Deficiency Log;
- Interviewed the United States Army Corps of Engineers Quality Assurance Representative, and the Iraqi Local National; and
- Conducted an on-site assessment and documented results at Police Station – Safwan IHP 404, Iraq.

## **Appendix B. Acronyms**

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CMU	Concrete Masonry Unit
CQC	Contractor Quality Control
GRS	Gulf Region South Division
IHP	Iraqi Highway Patrol
Km	kilometer
L	Liter
m	meter
QA	Quality Assurance
QAR	Quality Assurance Representative
SOW	Scope of Work
USACE	United States Army Corps of Engineers

## **Appendix C. Report Distribution**

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### **Department of State**

Secretary of State

    Senior Advisor to the Secretary and Coordinator for Iraq

U.S. Ambassador to Iraq

    Director, Iraq Reconstruction Management Office

Inspector General, Department of State

### **Department of Defense**

Deputy Secretary of Defense

    Director, Defense Reconstruction Support Office

Under Secretary of Defense (Comptroller)/Chief Financial Officer

    Deputy Chief Financial Officer

    Deputy Comptroller (Program/Budget)

Inspector General, Department of Defense

### **Department of the Army**

Assistant Secretary of the Army for Acquisition, Logistics, and Technology

    Principal Deputy to the Assistant Secretary of the Army for Acquisition,  
        Logistics, and Technology

    Deputy Assistant Secretary of the Army (Policy and Procurement)

    Director, Project and Contracting Office

    Commanding General, Joint Contracting Command – Iraq/Afghanistan

    Commander, Gulf Region Division, U.S. Army Corps of Engineers

Assistant Secretary of the Army for Financial Management and Comptroller

Auditor General of the Army

### **U.S. Central Command**

Commanding General, Multi-National Force - Iraq

    Commanding General, Multi-National Corps – Iraq

    Commanding General, Multi-National Security Transition Command – Iraq

    Commander, Joint Area Support Group – Central

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Director, Defense Contract Audit Agency

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House Committee on International Relations  
    Subcommittee on Middle East and Central Asia  
House Committee on Government Reform  
    Subcommittee on Government Efficiency and Financial Management  
    Subcommittee on National Security, Emerging Threats and International Relations

## **Appendix D. Project Assessment Team Members**

The Office of the Assistant Inspector General for Inspections, Office of the Special Inspector General for Iraq Reconstruction, prepared this report. The principal staff members who contributed to the report were:

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